



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,616	04/02/2004	Michael D. Durham	3791-30	2481
22442	7590	03/29/2006	EXAMINER	
SHERIDAN ROSS PC 1560 BROADWAY SUITE 1200 DENVER, CO 80202			LAWRENCE JR, FRANK M	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/817,616

Applicant(s)

DURHAM ET AL.

Examiner

Frank M. Lawrence

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date (3).
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 148 (p. 6, line 19) and 124 (p. 9, line 2 and p. 10, line 3). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: The blank section in line 9 of page 8 should be completed. In the specification, the data points of figure 4 have not been defined in any way that can be understood. It is unclear what the different points refer to. In line 1 of claim 18, "1" should be changed to "10".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1724

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 4, 5, 10, 12-17, 19 and 21-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang et al. (6,818,043).

5. Chang et al. '043 teach a system for removing mercury from a combusted fuel gas, comprising reducing the size of a coarse activated carbon sorbent to about 5 microns in a grinder (20), injecting the ground sorbent into the contaminated exhaust stream, and separating particles from the stream in a filter or separator (34) (see figures, col. 6, lines 1-49, col. 7, lines 12-53).

The limitations to particle size reduction and time between method steps in claims 15, 16, 19 and 24-27 do not further limit the recited structure of the parent claims.

6. Claims 1, 4, 5, 8, 15, 16, 19 and 21-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Pennline et al. (6,521,021).

7. Pennline et al. '021 teach a system for removing mercury from a combusted fuel gas, comprising reducing the size of an activated coal sorbent in a grinder (50), injecting the ground sorbent into the contaminated exhaust stream, optionally storing the sorbent before injection, and separating particles from the stream in a filter or separator (34) (see figure 1, col. 3, line 31 to col. 4, line 66). The limitations to particle size reduction and time between method steps in claims 15, 16, 19 and 24-27 do not further limit the recited structure of the parent claims.

8. Claims 1, 5, 8, 19 and 21-27 rejected under 35 U.S.C. 102(e) as being anticipated by Hammel et al. (2003/0219368).

9. Hammel et al. '368 teach a system for removing mercury from a combusted fuel gas, comprising recycling a loaded sorbent that has been used for removing contaminants from the

Art Unit: 1724

gas by washing, drying, comminuting, and reinjecting the treated sorbent into the gas stream (see figure 8, paragraphs 26, 27, 39-43, 50, 56, 57, 61, 80, 87). The limitations to the time between steps, sorbent type, particle size reduction, and method of comminuting in claims 19, 22, 24, 25 and 27 do not further limit the recited structure of claim 19.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Chang et al. '043, Pennline et al. '021, or Hammel et al. '368.

12. Either one of Chang et al. '043, Pennline et al. '021, or Hammel et al. '368 discloses all of the limitations of the claims except that there is a preferred time between the comminution and introducing steps and that there is a preferred size and reduction factor of the sorbent. Absent a proper showing of criticality or unexpected results, the process timing and size factors are considered to be parameters that would have been routinely optimized by one having ordinary skill in the art at the time of the invention in order to achieve a high adsorption efficiency.

13. Claims 10 and 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Pennline et al. '021 or Hammel et al. '368 in view of Bhat et al. (5,672,323).

14. Either one of Pennline et al. '021 or Hammel et al. '368 discloses all of the limitations of the claims except that there are a plurality of nozzles distributed through the gas stream for introducing comminuted sorbent. Bhat et al. '323 disclose a flue gas treatment system

Art Unit: 1724

comprising a plurality of nozzles (34, 42, 46) for introducing sorbent particles throughout the contaminated gas stream (see figure 1, col. 2, lines 39-67). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the device of either one of Pennline et al. '021 or Hammel et al. '368 by using a plurality of nozzles in order to provide a means to evenly distribute sorbent in the waste stream to result in a higher contaminant removal.

15. Claims 2, 9, 11, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Pennline et al. '021 or Hammel et al. '368 in view of Bhat et al. '323 as applied to claims 1, 10 and 19 above, and further in view of Mazurkiewicz (6,318,649).

16. Either one of Pennline et al. '021 or Hammel et al. '368 in view of Bhat et al. '323 disclose all of the limitations of the claims except that the comminution device is a jet mill or uses a high velocity stream and impaction to effect size reduction. Mazurkiewicz '649 discloses a high-pressure mill for reducing the size of particles such as coal by using a high-velocity stream and impaction with a collider (see abstract, col. 1, lines 57-65, col. 3, lines 31-44). It would have been obvious to one having ordinary skill in the art at the time of the invention to use the mill of Mazurkiewicz '649 in the prior art systems in order to provide a comminuting device that is energy efficient and avoids the problems of wearing of the friction parts.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references listed on the attached PTO-892 form disclose flue gas purification systems.

Art Unit: 1724

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 571-272-1161.

The examiner can normally be reached on Mon-Thurs 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Frank M. Lawrence
Primary Examiner
Art Unit 1724

fl

Frank Lawrence
3-22-06